

Applicant: Ulrich MAIER et al.  
Docket No. R.305913  
Preliminary Amdt.

**AMENDMENTS TO THE TITLE:**

Please amend the title as follows:

--INLET VALVE ASSEMBLY OF A HIGH-PRESSURE FUEL PUMP--

**AMENDMENTS TO THE SPECIFICATION:**

Page 1, please add the following new paragraphs before paragraph [0001]:

[0000.2] CROSS-REFERENCE TO RELATED APPLICATIONS

[0000.4] This application is a 35 USC 371 application of PCT/DE 2004/002343  
filed on October 21, 2004.

[0000.6] BACKGROUND OF THE INVENTION

Please replace paragraph [0001] with the following amended paragraph:

[0001] ~~Prior Art~~ **Field of the Invention**

Please add the following new paragraph after paragraph [0002]:

[0002.5] Description of the Prior Art

Please replace paragraph [0003] with the following amended paragraph:

[0003] A valve assembly of the type defined ~~at the outset~~ is known on the market. It is used for instance in a high-pressure fuel pump of a common rail injection system. This kind of high-pressure fuel pump is embodied as a piston pump. A ball check valve is provided as an inlet valve to a pumping chamber. The ball of the check valve is disposed in a valve chamber, into which an inlet bore discharges. The inlet bore includes a first conduit portion, which is located substantially perpendicular to the longitudinal axis of a piston of the piston pump, and a second conduit portion, which is coaxial to the longitudinal axis of the piston of the piston

pump. The longitudinal axes of the two conduit portions intersect in an intersecting region. In this intersecting region, during piston pump operation the fuel flowing toward the inlet valve experiences a sharp deflection.

Please replace paragraph [0004] with the following amended paragraph:

[0004] The object of the present invention is to refine a valve assembly of the type defined at ~~the outset~~ such that it works with as little loss as possible, and as a result the efficiency, for instance of a high-pressure fuel pump in which the valve assembly is used, becomes better.

Page 2, please replace paragraph [0005] with the following amended paragraph:

[0005] This object is attained ~~in a valve assembly of the type defined at the outset~~ in that the fluid conduit is embodied such that a rotation (swirl) about the longitudinal axis of the fluid conduit is impressed on the fluid stream that flows toward the valve chamber.

Please replace paragraph [0006] with the following amended paragraph:

[0006] ~~Advantages of the Invention~~

#### **SUMMARY AND ADVANTAGES OF THE INVENTION**

Page 3, please delete paragraph [0010].

Please replace paragraph [0011] with the following amended paragraph:

[0011] It is proposed that the fluid conduit includes a first conduit portion and adjoining it a second conduit portion, and the longitudinal axes of the conduit portions are at an angle  $< 180^\circ$  to one another, and the longitudinal axis of the first conduit portion is laterally offset from the longitudinal axis of the second conduit portion. As a result of the lateral offset, the

rotation of the flow in the second conduit portion is brought about in a simple **manner**.

Turbulence caused by the kink between the two conduit portions is effectively smoothed, or such turbulence cannot even arise in the first place.

Page 5, please replace paragraph [0019] with the following amended paragraph:

[0019] ~~Drawings~~      **BRIEF DESCRIPTION OF THE DRAWINGS**

Please replace paragraph [0020] with the following amended paragraph:

[0020] Below, ~~[[an]]~~ especially preferred exemplary ~~embodiment~~ **embodiments** of the present invention ~~[[is]]~~ **are** described in further detail, in conjunction with the accompanying drawings, ~~[[.]]~~ **In the drawings in which:**

Page 6, please replace paragraph [0024] with the following amended paragraph:

[0024] Fig. 4 is a detail **of the** inlet valve of Fig. 2;

Please replace paragraph [0029] with the following amended paragraph:

[0029]      ~~Description of the Exemplary Embodiments~~

**DESCRIPTION OF THE PREFERRED EMBODIMENTS**

Page 7, please replace paragraph [0032] with the following amended paragraph:

[0032] In the cylinder 26a, there is a piston bore 28, in which a piston, not shown, is received longitudinally displaceably. Via a fluid conduit 30, the piston bore 28 ~~can be~~ **is** connected to a fuel inlet 32 ~~[[.]]~~ **The fuel inlet 32 which** communicates in turn with the prefeed pump 14.

Please replace paragraph [0033] with the following amended paragraph:

[0033] The fluid conduit [[28]] **30** is divided into two conduit portions 34 and 36. The first conduit portion 34 extends at an angle from an inlet conduit (not identified by reference numeral), which in turn leads away from a fuel inlet 32. The first conduit portion 34 is plugged from the outside by a ball, not identified by a reference numeral. Its longitudinal axis 38 extends perpendicular to the longitudinal axis 40 of the piston bore 28 and of the second conduit portion 36 (see Fig. 3). The two longitudinal axes 38 and 40 do not intersect, however. As can be seen especially from Figs. 2 and 4 as well as 6 and 7, instead the longitudinal axis 38 of the first conduit portion 34 is laterally offset from the longitudinal axis 40 of the second conduit portion 36. The lateral offset is designated V in Figs. 6 and 7. The two conduit portions [[38]] **34** and [[40]] **36** have the same radius in cross section, and this radius is **greater less** than the lateral offset V of the two longitudinal axes 38 and 40.

Page 10, please add the following new paragraph after paragraph [0040]:

[0041] The foregoing relates to a preferred exemplary embodiment of the invention, it being understood that other variants and embodiments thereof are possible within the spirit and scope of the invention, the latter being defined by the appended claims.